PWC250 & PWC450
POTABLE WATER CART
Model Year: 2008

*** Important ***
Read User's Manual Completely Prior to Operating, Towing, or Servicing Cart

Par-Kan Company
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PWC250 & PWC450

CUSTOMER: _____

SERIAL # _____

MANUFACTURING DATE: -_____

PWC250 & PWC450 Manual Table of Contents

Page 1..... Cover Page

Page 2..... Unit Information

Page 3..... Table of Contents

Page 4..... Manual Introduction

Page 5..... Warranty Information

Page 6..... General Information

Page 7..... Operating Instructions

Page 8..... Safety Precautions

Page 9..... Specifications & Capabilities

Page 10-12..... Maintenance & Overhaul

Page 13..... Troubleshooting

Page 14..... Illustrated Parts Listing

Page 15-17 ..... PWC250 & PWC450 5th Wheel Assembly

Page 18-20..... PWC450 5th Wheel Torsion Axle Assembly

Page 21..... PWC250 & PWC450 Brake Bar Assembly

Page 22-24..... Electrical Diagram

Page 25-26..... Decal Package

PWC250 & PWC450 Manual Introduction

This manual incorporates information for Par-Kan Company's Potable Water Cart, model 250 & 450 and includes general information, operation, maintenance, overhaul and illustrated parts lists. This manual replaces all Par-Kan Company's PWC250 & PWC450 manuals previously issued in their entirety.

If errors or misinformation are found, change requests should be submitted in writing to the manufacturer.

If you have any questions about this product or would like further information about Par-Kan Company's ground support equipment please contact the manufacturer at:

Par-Kan Company
Ground Support Equipment Division
P.O. Box 219
2915 West 900 South
Silver Lake, IN 46982
(260) 352-2141 (260) 352-0701 Fax

Par-Kan Company – Ground Support Equipment
Model PWC250 & PWC450 Warranty

Par-Kan Company's Ground Support Equipment is warrantied to the original purchaser to be free from defects in material and workmanship for a period of one year from the date of purchase as dated on Par-Kan's original invoice.

Par-Kan will replace during the warranty period, subject to an examination by an authorized representative of Par-Kan, any warrantied part which proves defective in material and/or workmanship under normal installation, use, and service. Parts must be returned, and transportation charges prepaid to our factory. Any damage to Par-Kan equipment as a result of modifications, misuse, abuse, neglect, accident, vandalism, fire, flood, other acts of God, or improper installation will void this warranty.

If Par-Kan receives notice of such defects during the warranty period, Par-Kan will either, at its option, repair or replace products which prove to be defective. Other manufacturer's warranties may apply for parts purchased by Par-Kan. Par-Kan Company makes no other warranty, either expressed or implied, with respect to this product. Any special, incidental, or consequential damages arising from any breach of warranty are specifically excluded hereunder.

PWC250 & PWC450 General Information

Steering:	Ball Bearing Turntable Steering
Wheels:	5 Bolt hub assembly with bearings (1,750 lb. load capacity each) Removable Spindles: 1-3/4" diameter Tires: 5.70 x 8.00 Pneumatic
Parking Brakes:	Tow bar activated friction brake
Tow Bar:	2-1/2" I.D. Tow bar lunette ring 5 Ton capacity
Finish:	White enamel finish
Reflectors:	3" Diameter (Amber / Red) D.O.T. approved Location: Front, Rear, and Sides
Cart Design:	Main Frame: Tube – 2" x 2" x 3/16" Shell: 14ga stainless steel
Tank Design:	PWC 250 Poly Tank PWC 450 Stainless Steel
Pump:	12 volt electric pump
Options:	25ft fill hose Winterization Package Manual Hose Reel 4.8 Honda Engine / Bronze Pedestal Pump Diaphragm Style Auxiliary Hand Pump Extended Fill Coupler Torsion Stub Axles on PWC450 ONLY 3.3 Honda Engine / Bronze Pedestal Pump Stainless Steel Shell

PWC250 & PWC450 Operating Instructions

1. Check to ensure that the unit is unplugged from power source, all hoses are secured, and that all access doors and hatches are closed.

2. Release the parking brake by pushing the tow bar back towards the unit and lifting up the brake latch with your foot, the brake will release as the tow bar is lowered into a horizontal position. Do not drop the tow bar.

3. Lay tow bar in a horizontal position and attach the tow bar to the towing vehicle. The tongue should be securely attached to the vehicle using all safety devices to ensure that the unit does not disconnect from the tow vehicle.

4. Tow the unit to the desired location, turn the tow vehicle engine off and set the parking brake. **CAUTION: DO NOT EXCEED 15MPH**

5. Remove the fill hose from the rear storage compartment. To remove cap from fill coupler grasp cap in left hand and grasp coupler in right hand. Turn coupler counter-clockwise while turning cap clockwise, cap will release. **CAUTION: POINT COUPLER AWAY FROM BODY WHEN REMOVING CAP, THE HOSE MAY BE UNDER PRESSURE.** Connect the fill hose to the aircraft and open the ball valve on filler hose. At the rear of the unit reset the meter, start the engine, (Refer to engine manufactures manual for starting procedures) **(WARNING: ENGINE ACCESS DOORS MUST BE LEFT OPEN WHILE ENGINE IS RUNNING)** and dispense the desired amount of water. When transfer is complete turn off engine, and close access doors. Close the ball valve on fill hose and remove from aircraft, replace cap on fill coupler, stow fill hose in compartment. Ensure that all caps are securely installed on aircraft and that the access panel or panels have been secured. Check to ensure that all hoses have been disconnected and properly stored, engine is turned off, and that all access doors on unit are closed prior to moving the unit.

6. Tow the unit to designated parking area, and disconnect the tow bar from the tow vehicle. To activate the parking brake push tow bar towards unit until tow bar latch locks tow bar in place . When tow bar is in the vertical position the parking brake is set. Plug the unit back into power source and check indicator lamp on rear of unit to ensure power is being received.

PWC250 & PWC450 Safety Precautions

TOWING:
The PWC250 and PWC450 cart is designed for aircraft ramp use only. It is not intended for highway or off-road use. Towing speed should not exceed 15mph. Always stow hoses and close all access doors prior to moving unit. **CAUTION: NEVER ATTEMPT TO MOVE THE UNIT WHILE HOSES ARE CONNECTED TO THE AIRCRAFT.**

PARKING:
When the unit is parked, tow bar should be latched in the upright position to engage the parking brake. If unit is not connected to the tow vehicle the parking brake must be engaged to prevent unit from rolling.

OPERATING:
Before moving unit, ensure the power supply has been disconnected from the outlet. When moving the unit by hand use caution, especially in wet conditions. The brakes on the PWC250 & PWC450 depend on friction between the brake bar and tire, wet conditions will require a greater braking distance. When removing cap from fill coupler point coupler away from body, the hose may be under pressure.

FUELING:
Never fuel service cart while engine is running. Refer to the engine manufacturer owners manual for type of fuel, fueling procedure, and for additional precautionary measures.

SANITATION:
The tank, filter and delivery system should be checked daily for contaminants. Refer to disinfecting system chart for proper decontamination.

PWC250 & PWC450 Specifications and Capabilities

	PWC250	**PWC450**
Dimensions:	Length : 96” + 32” Tow Bar Width: 48” Height: 48”	Length: 130” Width: 59” Height:59”
Empty Weight: (Approx.)	1526 lbs.	1738 lbs.
Tank Capacity:		
- Water Tank	946.25 Liters (250 gal.)	1710 Liters (450 gal.)

Pump Flow Rate:

Honda 2.5 hp.	17 g.p.m.
Diaphragm Hand Pump	1 gallon per 5 strokes
12 Volt Pump	7.5 gpm

Speed Limit: Towing speed should not exceed 15 mph.

PWC250 & PWC450 Maintenance / Overhaul

Maintenance:

Proper maintenance is an essential part of a long life for the PWC250 & PWC450. As with any equipment the cart needs inspections, lubrications and adjustments to keep it in good condition while providing maximum protection for the equipment.

WARNING: Before removing or installing any components, be sure the trailer is on level ground with the wheels securely blocked.

Wheels and Tires:

Check the tire pressure weekly. The proper pressure is labeled on the tire.
Check and adjust the wheel bearings during the first few days of operation.
To tighten wheel bearings:

1. Remove dust cap
2. Remove cotter pin from the castle nut and tighten the nut until there is a slight drag on the bearing while turning the wheel.
3. Loosen the nut one slot and reinsert the cotter pin.
4. Following this adjustment there should be a slight amount of drag on the bearing.
5. Replace the dust cap.

Wheel Bearing Lubrication:

Pack the wheel bearings every 6 months or as needed with S.A.E. multi-purpose grease.

Brake Adjustment:

Periodic adjustment of the brake is needed to assure proper operation.

1. Raise the tongue so that the tongue latch touches the tongue.
2. With the tongue in this position, check the rub brake, the rub brake should just touch the tires.
3. If the rub brake is not properly adjusted, adjust the draglink so that the rub brake touches the tire. To adjust the draglink loosen the nuts and adjust the threaded rod accordingly, then re-tighten the nuts against the brake yoke.

Battery:

Maintenance Free

FIFTH WHEEL STEERING

Check the steering assembly daily; ensure that the tow bar pin assembly and cotter pin are securely fastened to the lower fifth wheel box. **WARNING: FAILURE TO ENSURE THAT PIN IS SECURED COULD LEAD TO LOSS OF STEERING AND CONTROL OF THE UNIT.**

Storage:

When storing the unit for extended period of time, the following procedures are suggested

1. Touch up all worn or damaged paint
2. Lift and block unit with tires lifted off the ground.
3. Remove battery
4. Drain and rinse tanks
5. Drain meter and hoses

Disinfecting System

The Potable Water Cart tank and supply system must be properly disinfected prior to being placed into service. The tank and water supply system of the Potable Water Cart should also be disinfected when repairs have been made to the tank or supply lines or if there is evidence of contamination.

The following is an excerpt taken from the U.S. Department of Health Education and Welfare, Public Health Service, Food and Drug Administration Washington D.C. 20204 PHS Pub. No. 308, 1964 Revision, 1974 Reprint.

The following instructions should be utilized in the disinfection of potable water of potable systems by the use of chlorine compounds:

A: Flush the tank and distribution system with potable water.
B: Determine the volume of water necessary to fill the tanks and distribution system completely. The amount of disinfecting agent required may be determined from table L . When the capacity of the system or the concentration of chlorine in the compound is different from those listed in the table below, the amount of disinfecting agent for 50-p.p.m. solution can be computed by:

$$\text{Dosage of powder} = \frac{70\ \%}{\text{Percent chlorine in composition}} \times \text{dosage in 70 - percent column}$$

$$\text{Dosage of liquid} = \frac{5\ \%}{\text{Percent chlorine in liquid}} \times \text{dosage in 5 – percent column}$$

Capacity of system		Ounces of chlorine compound required			
Gallons	Pounds	Chlorinated Lime (25 percent)	High-Test Calcium Hypochlorite (70 percent)	Liquid Sodium Hypochlorite	
				5%	10%
50	417	1.3	0.5	6.7	3.3
75	626	2.0	0.7	10.	5.0
100	834	2.7	1.0	0	6.7
125	1,043	3.3	1.2	13.	8.3
150	1,251	4.0	1.4	3	10.0
175	1,460	4.7	1.7	16.	11.7
200	1,668	5.3	1.9	7	13.3
250	2,085	6.7	2.4	20.	16.7
				0	
				23.	
				3	
				26.	
				7	
				33.	
				3	

Table L – *Amount of chlorine required for a 50-p.p.m. Solution* Continued on next page.

Preparing Solution

Prepare the chlorine solution as follows:

1. Chlorinated Lime. Place the proper amount of chlorine compound in a clean, dry bucket. Add a small amount of water and mix to a thick paste. Dilute the paste by adding water gradually and stirring constantly until the chemical goes into solution. (Warm water is better than cold water for this purpose.) Allow the solution to stand for 30 minutes so that the undissolved particles may settle to the bottom. Pour off the clear liquid (which is the chlorine solution) and if necessary, filter it through muslin or cheesecloth.

2. High-Test Hypochlorite. Place the proper amount in a bucket, fill with water and stir until the powder is dissolved (disregard slight turbidity, if any).

3. Liquid Sodium Hypochlorite. These solutions require no additional preparation.

A. Introduce the chlorine solution into the potable water tank.

B. Immediately after introducing the chlorine solution the tank should be completely filled with water. Sufficient mixing usually will be obtained by swirling action of the incoming water.

C. Open each tap on the distribution system and allow the water to flow until chlorinated water appears. Since a certain amount of the chlorinated water will have been drawn from the storage tank it should be refilled to overflowing and chlorine solution should be added, if necessary, to obtain at least a 50 p.p.m. dose in tank.

D. After the tank and the piping system have been filled the chlorinated water should be allowed to stand in them for at least 4 hours before it is discharged. (In an emergency, the contact time may be shortened to 1 hour by increasing the dosage to 100 p.p.m.).

PWC250 & PWC450 Troubleshooting

If the brakes do not engage or disengage?
Check the brake yoke bar adjustment

If the steering on the unit will not turn?
Check to ensure the brake is not engaged

If the unit pulls to one side?
Check the tire pressure and bearings

If the tow bar will not stay in the locked position
Check the tow bar latch and latch bar for excessive wear
Check the brake yoke bar for any adjustment

If the unit will not pump fluid?
Check the fluid level in tank then check to ensure that all valves are open
Check the fill hose for kinks or blockages

If the engine / hand pump will not pump?
Check the gas tank for fuel
Check the love joy couplings for any damage
Check the pump for compression

If meter does not work properly?
- Check to ensure fluid is being pumped, if fluid is flowing stop pumping and reset meter

PWC250 & PWC450 Illustrated Parts Listing

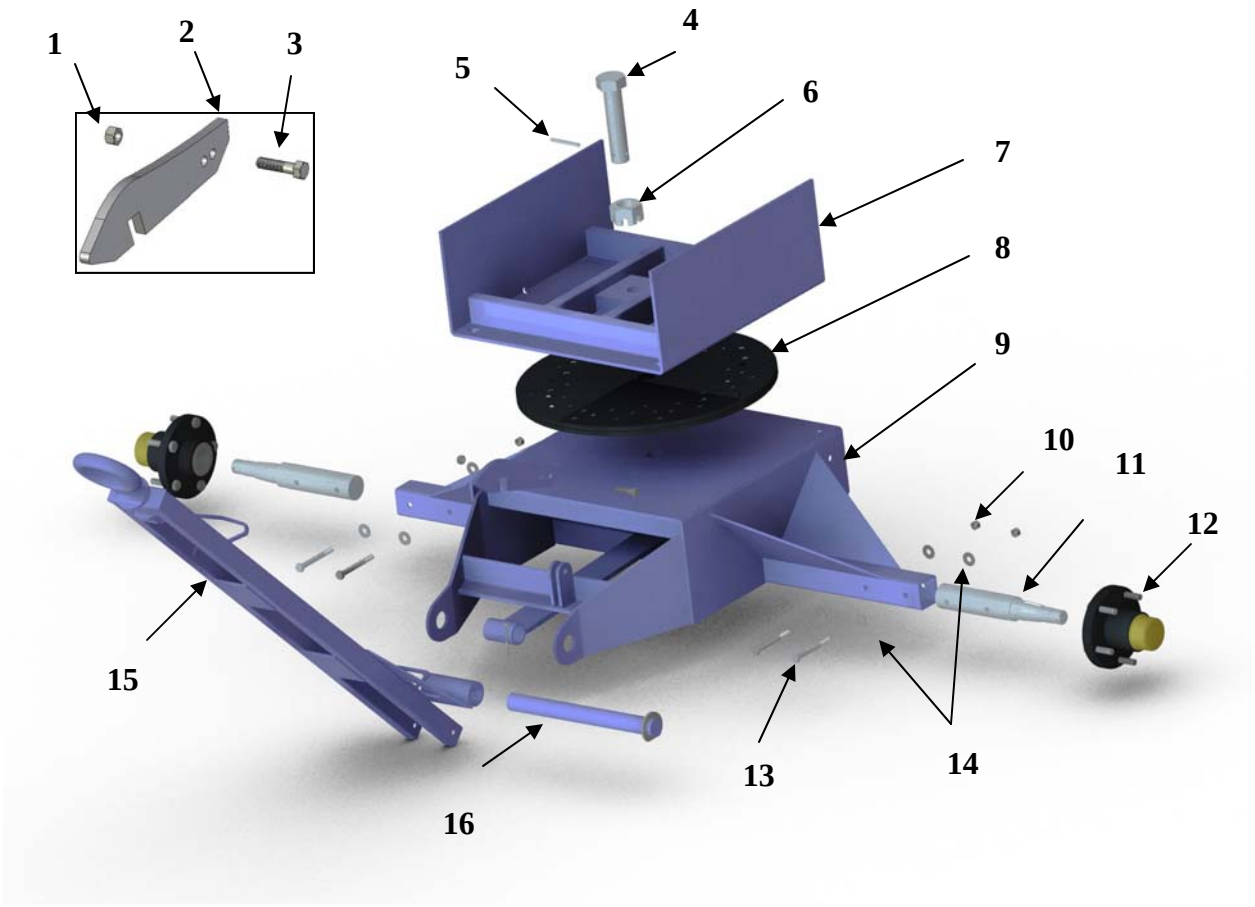
The illustrated parts list contains a breakdown of the PWC250 & PWC450. All parts contained in the water cart that can be disassembled, repaired, manufactured, replaced or reassembled are listed.

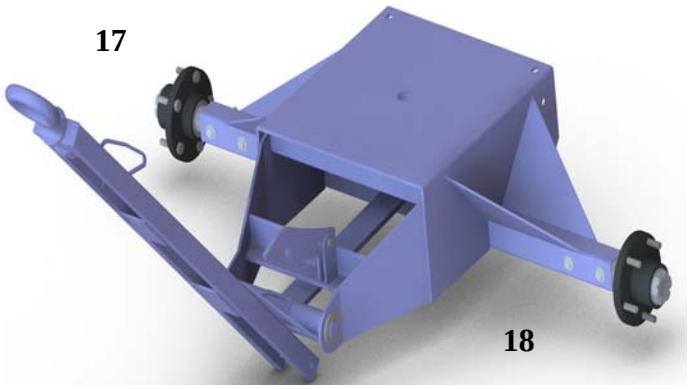
Each sketched assembly is followed immediately by its detailed parts list.

Item Number Column: The figure and index numbers key the detailed parts list to the applicable illustration.

Part Number Column: This column contains the manufacturer's and vendor's part numbers.

PWC250 & PWC450 5th Wheel Assembly (Fixed Axle)

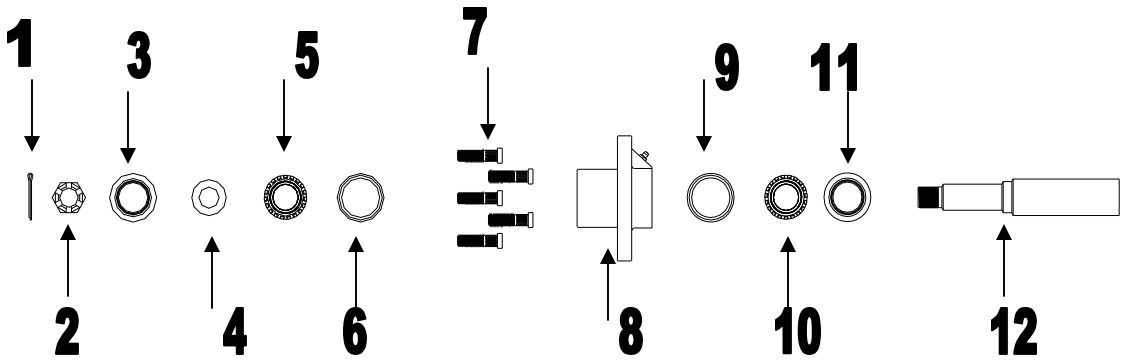




PWC250 & PWC450 5th Wheel Parts Listing (Fixed Axle)

Item No.	Part Number	Description
1	216507	LOCKNUT, 3/8"-16 HEX 2-WAY - ZINC
2	CBC510-2P500	LATCH, TOW BAR
3	211061	HHCS, 3/8"-16 X 1-1/2" GR5 ZINC
4	CBC510-2P600	5TH WHEEL BOLT
5	210104	ROLL PIN, 3/8" X 2-1/2" (SPRING PIN)
6	216220	NUT, 1-1/4"-12 SLOTTED HEX - PLAIN
7	CBC510-2W035	UPPER 5TH WHEEL WELDMENT
8	241197	TURNTABLE, LAMINATED W/3/4" CHROME BALLS
9	CBC510-2W015	LOWER 5TH WHEEL WDMT, FAFP PWC 450
	OBC480-2W015	LOWER 5TH WHEEL WDMT, FAFP PWC 250
10	216507	LOCKNUT, 3/8”-16 HEX 2-WAY ZINC
11	241000	SPINDLE, “STANDARD” GSE
12	241025	HUB ASSY., 5 BOLT 4 1/2” “STANDARD” GSE
13	211069	HHCS,3/8”-16 X 3 1/2” GR5 ZINC
14	217003	WASHER, 3/8” USS FLAT ZINC
15	270510	TOWBAR
16	CBC510-2W041	TOW BAR PIN WELDMENT
17	CBC480-2S015	FIXED AXLE, LOWER 5TH WHEEL ASSEMBLY PWC250
18	CBC510-2S015	FIXED AXLE, LOWER 5TH WHEEL ASSEMBLY PWC450

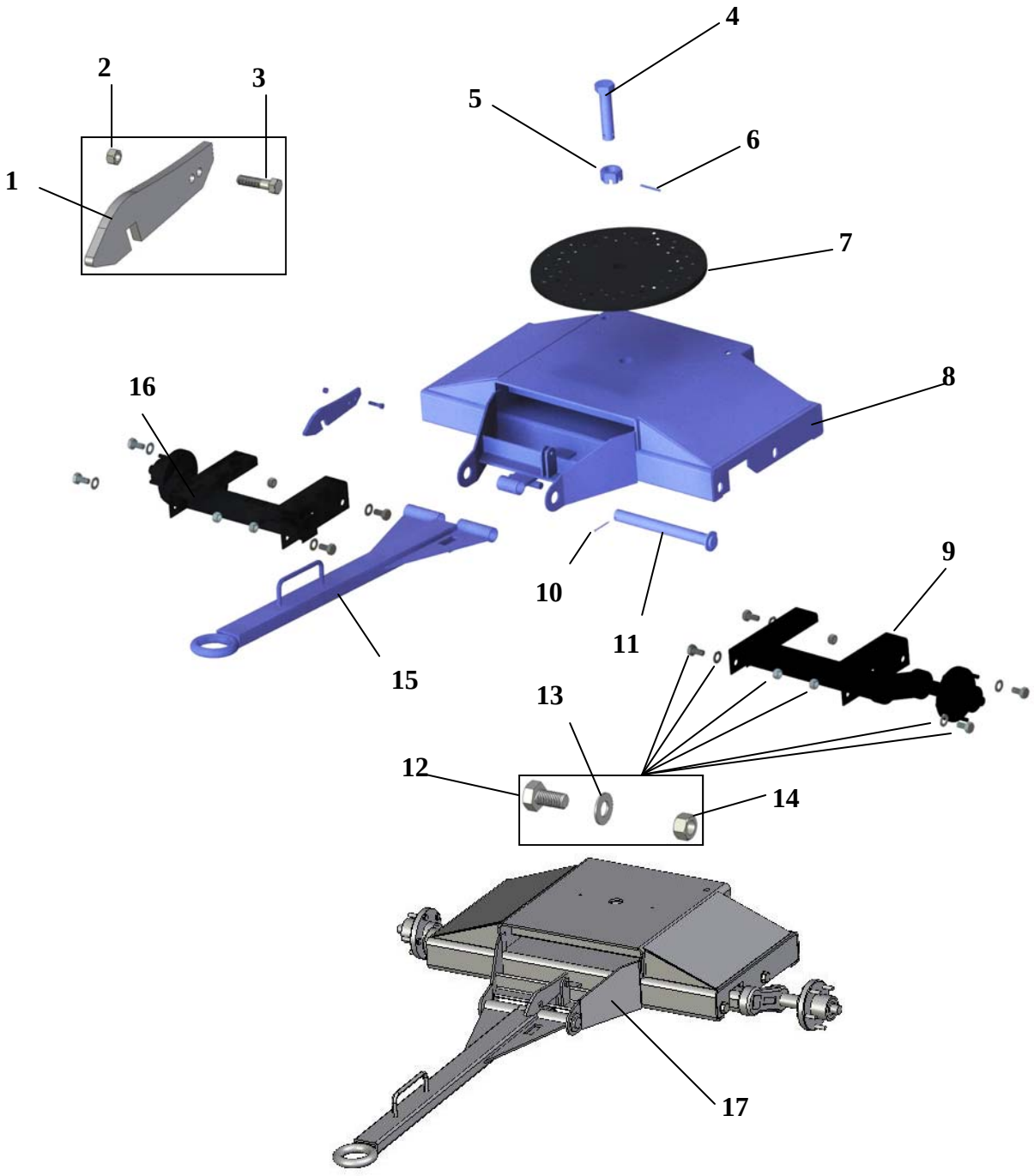
PWC250 & PWC450 Spindle & Hub Assembly



Key #	Part Number	Description
1	241108	Cotter Pin
2	241107	Spindle Nut
3	241109	Dust Cap
4	241106	Washer with D shaped hole
5	241105	Outer Bearing
6	241104	Outer Cup
7	241103	Lug Bolt
8	241025	Hub Assembly (Includes part numbers 1-11)
9	241102	Inner Cup
10	241101	Inner Bearing
11	241100	Grease Seal
12	241000	Spindle
**	219023	Pack of 20 lug nuts (bolt bag)

** Not included in the illustration

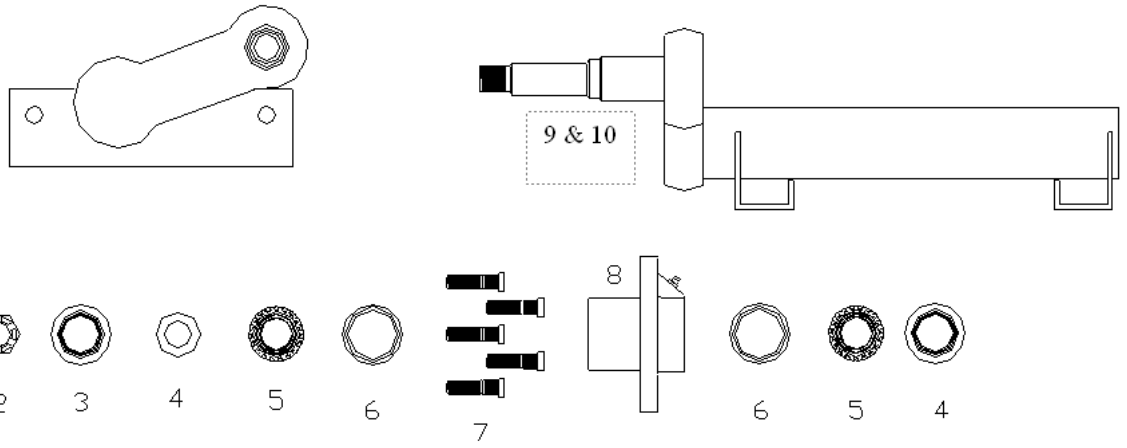
PWC450 LOWER 5TH WHEEL TORSION AXLE ASSEMBLY (BEARING)



PWC450 LOWER 5TH WHEEL TORSION AXLE ASSEMBLY (BEARING) PARTS LISTING

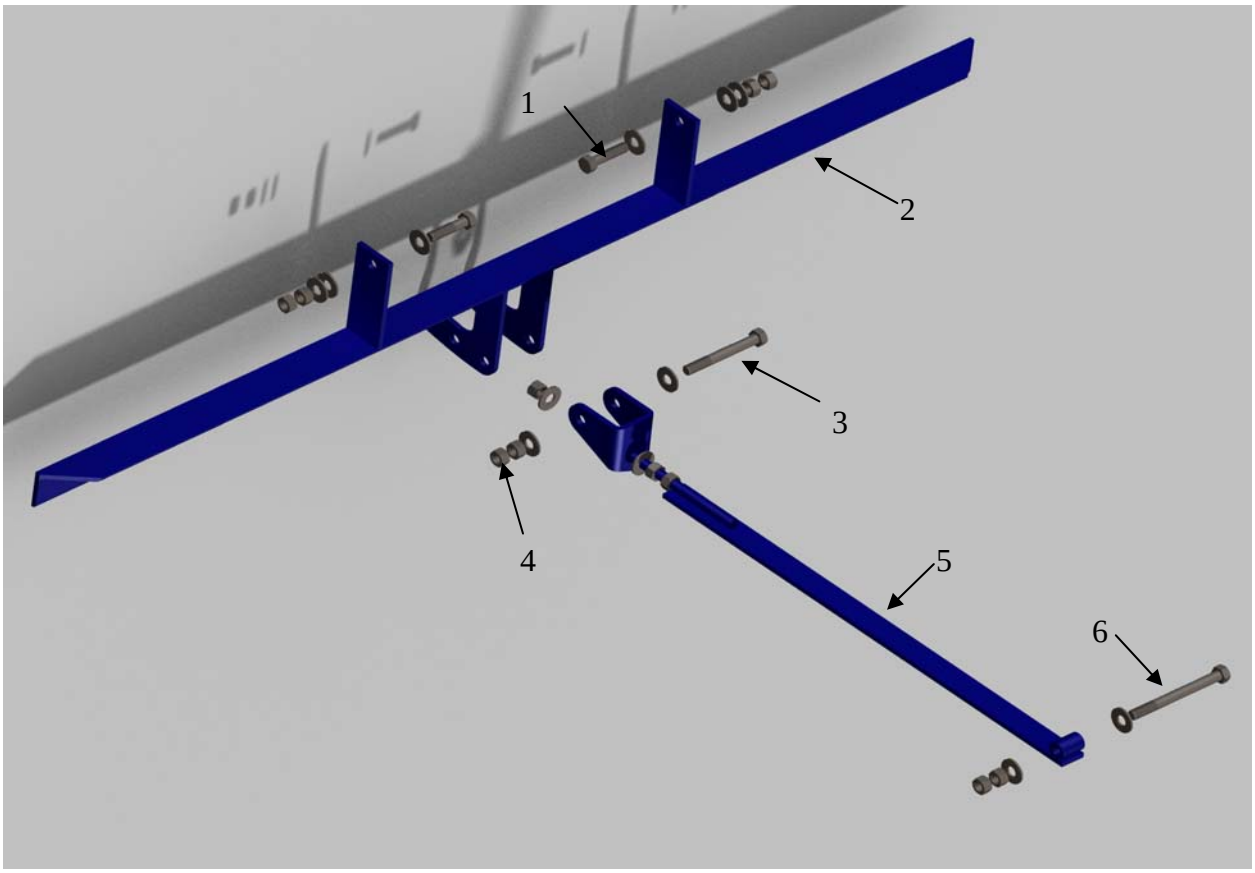
Item No.	Part Number	Description
1	CBC510-2P500	LATCH, TOW BAR
2	216507	LOCKNUT, 3/8"-16 HEX 2-WAY - ZINC
3	211061	HHCS, 3/8"-16 X 1-1/2" GR5 ZINC
4	CBC510-2P600	5TH WHEEL BOLT
5	216220	NUT, 1-1/4"-12 SLOTTED HEX - PLAIN
6	210104	ROLL PIN, 3/8" X 2-1/2" (SPRING PIN)
7	241197	TURNTABLE, LAMINATED W/3/4" CHROME BALLS
8	CBC510-2W012	LOWER 5TH WHEEL WELDMENT (BEARING)
9	241021	TORSION STUB AXLE ASSY (LH)
10	210155	COTTER PIN, 3/16" X 2" - ZINC
11	CBC510-2W041	TOW BAR PIN WELDMENT
12	211159	HHCS, 5/8"-11 X 1-1/4" GR5 ZINC
13	217007	WASHER, 5/8" USS FLAT ZINC
14	216515	LOCKNUT, 5/8"-11 HEX 2-WAY - ZINC
15	CBC510-2W040	TOW BAR WELDMENT
16	241022	TORSION STUB AXLE ASSY (RH)
17	CBC510-2A013	LOWER 5TH WHEEL ASSEMBLY (BEARING)
18	CBC510-2S015	LWR 5TH WHEEL ASSEMBLY (W/ AXIS, NO TOWBAR)

PWC450 TORSION STUB AXLE PARTS LIST



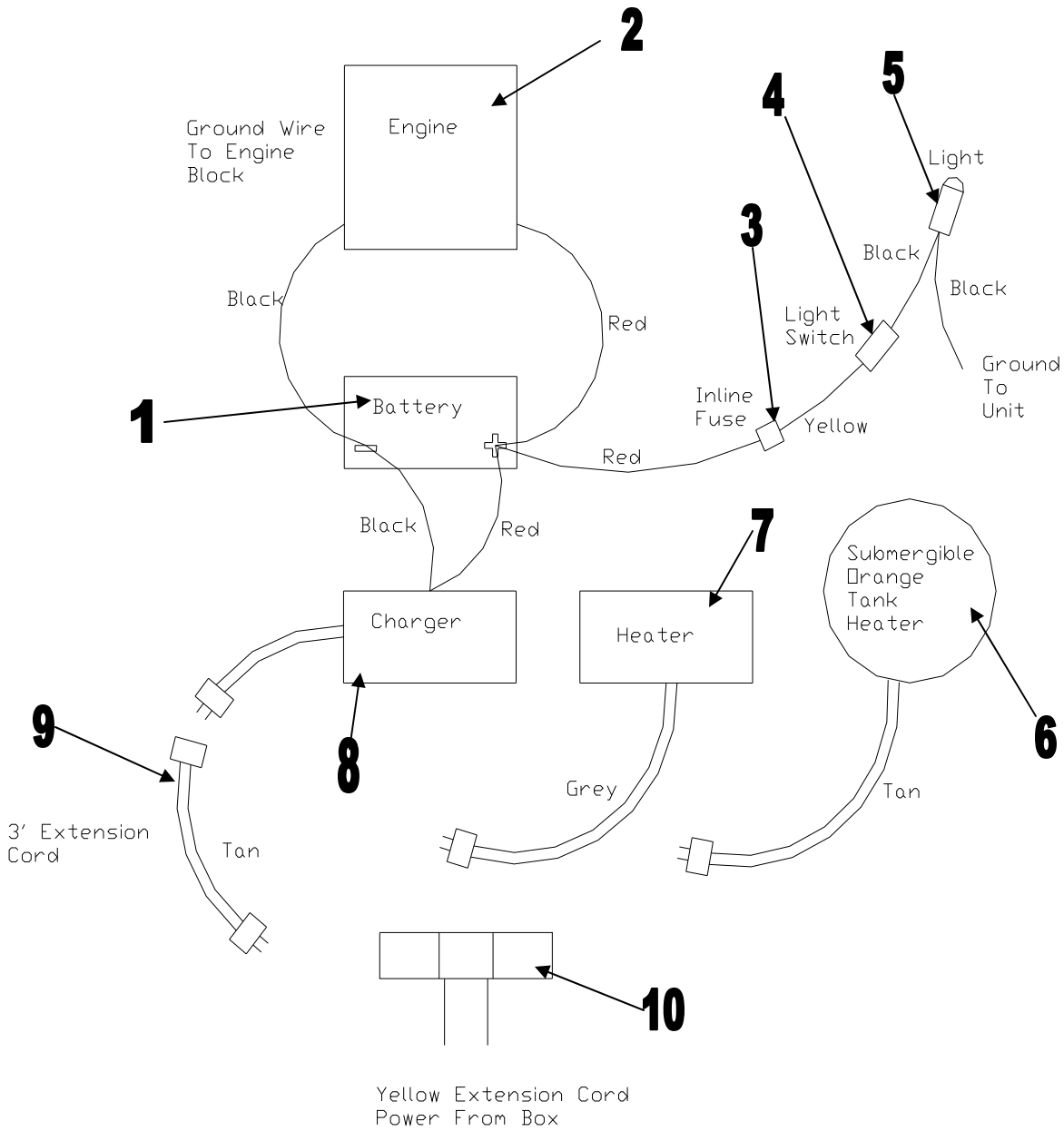
Item No.	Part Number	Description
1	241108	COTTER PIN, SPINDLE /GSE
2	241117	NUT, SPINDLE "TORSION AXLE" GSE
3	241116	SEAL, "TORSION" HUB / GSE
4	241120	WASHER, SPINDLE "TORSION" GSE
5	241119	BEARING, INNER/OUTER "TORSION" GSE
6	241118	CUPS, "TORSION" 2,000# IDLER GSE
7	241103	LUG BOLT, PRESS-IN (GSE)
8	241027	HUB ASSY., "TORSION" 5 BOLT 4-1/2" GSE (# 1-8)
9	241019	TORSION STUB AXLE ASSY (LH) W/O HUB
10	241020	TORSION STUB AXLE ASSY (RH) W/O HUB

PWC250 & PWC450 Brake Bar Assembly



Key #	Part Number	Description
1	211117	HHCS, 1/2”-13 X 2” GR5 Zinc
2	CBC480-1W001	PWC250 BRAKE BAR
	L250LP-1W000	PWC450 BRAKE BAR
3	211124	HHCS, 1/2”-13 X 4” GR5 Zinc
4	216511	Locknut, 1/2”-13 HEX 2-Way-Zinc
5	L250LP-1W001	Brake Adjustment Bar
6	211127	HHCS, 1/2”-13 X 5” GR5 Zinc

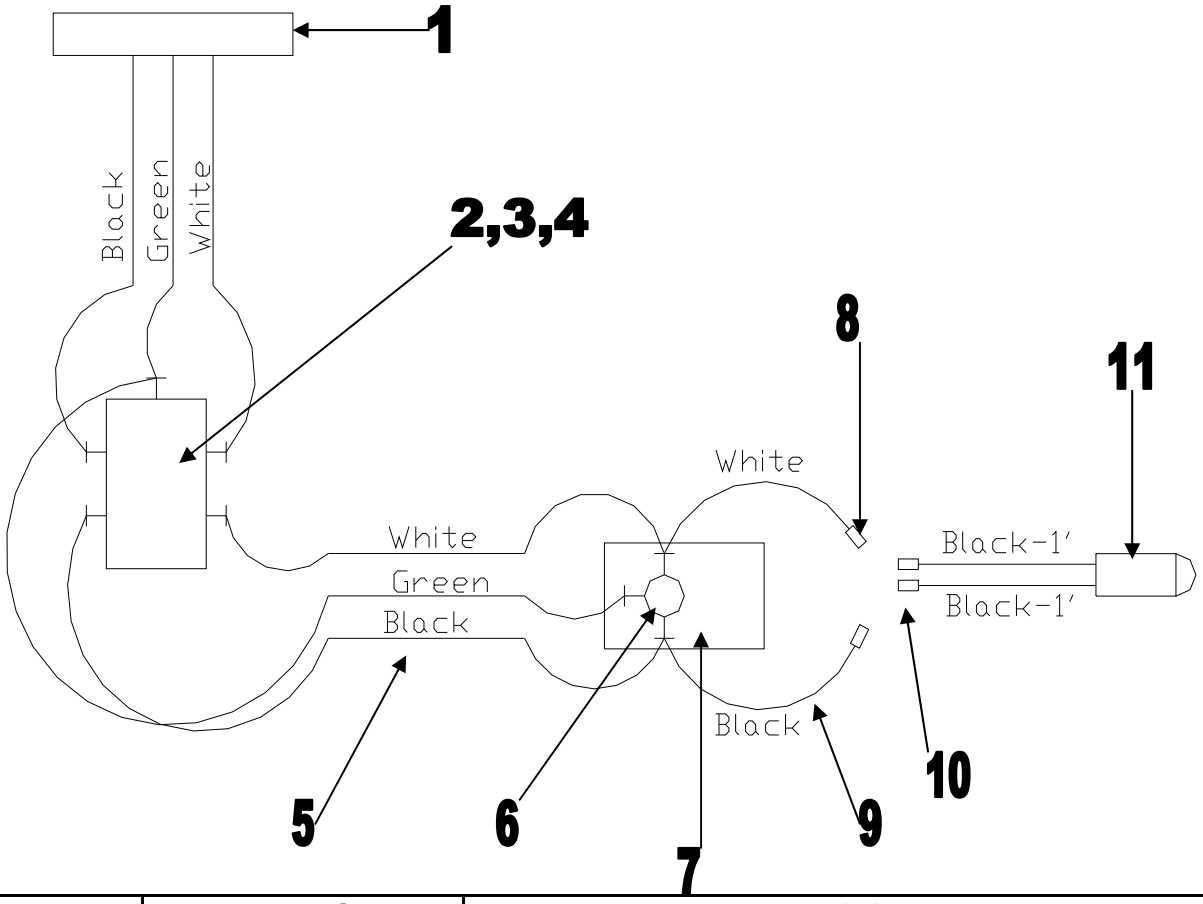
PWC250 & PWC450 Electrical Diagram



PWC250 & PWC450 Electrical Diagram Parts Listing

Key #	Part Number	Description
1	640226	Battery, 12 Volt Deep Cell
2	260016	5.5 Honda Engine
3	670031	Fuse, 15 – ATC
4	640016	Switch, Toggle – Momentary Contact
5	660010	Light
6	640203	Stainless Steel Tank Heater
	640228	Blanket Heater (40 Gallon)
	640029	Blanket Heater (60 Gallon)
7	640224	Space Heater
8	640251	Battery Charger
9	610026	Extension Cord – 3ft.
10	610024	Extension Cord – 2ft.

PWC250 & PWC450 Electrical Diagram



Key #	Part Number	Description
1	610024	Cord, 2 Ft. 3 Conductor 15 Amp 125 V
2	630500	Weatherproof Electrical Box – Plastic
3	640062	Cover, Vertical Ground Fault (GFCI)
4	640060	Dead front Ground Fault (GFCI)
5	630502	Weatherproof Cord Connector
6	640040	Inlet Plug Base w/ Cover
7	630500	Weatherproof Electrical Box – Plastic
8	610129	Disconnect Male Terminal, 16-14 Insulated (Blue)
9	610053	Primary Wire, #16 Gauge Black
10	610158	Terminal, Push – On 16-14 AWG
11	640030	Red Indicator Light

PWC250 & PWC450 Decal Package

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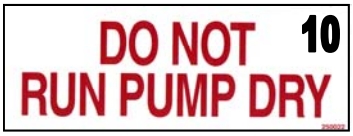

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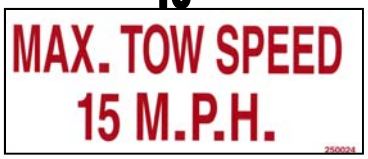

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CAUTION
• Personal injury or property damage may occur from improper use.
• Read and understand operators manual before using this equipment.
• Phone 800 291-5487 for replacement manual.
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PWC250 & PWC450 Decal Parts Listing

Key #	Part Number	Description
1	250045	Decal, Portable Water Service
2	250042	Decal, Fill Hose Compartment
3	250044	Decal, Open Before / Close After Use
4	250038	Decal, Install Fill Cap After Use
5	250040	Decal, Charger / Heater
6	250069	Decal, Par-Kan Company
7	250021	Decal, Refill Level
8	250250	Decal, Made in the U.S.A
9	250026	Decal, Set Brake
10	250022	Decal, Do Not Run Pump Dry
11	250029	Reflector, 3” Round Red
12	250030	Reflector, 3” Round Amber
13	250024	Decal, Max Tow Speed 15 mph
14	250063	Decal, Caution – Operators Manual
15	250037	Decal, Meter / Battery / Charger Compartment
16	250035	Decal, No Standing On Tank
17	250020	Decal, Grease Here